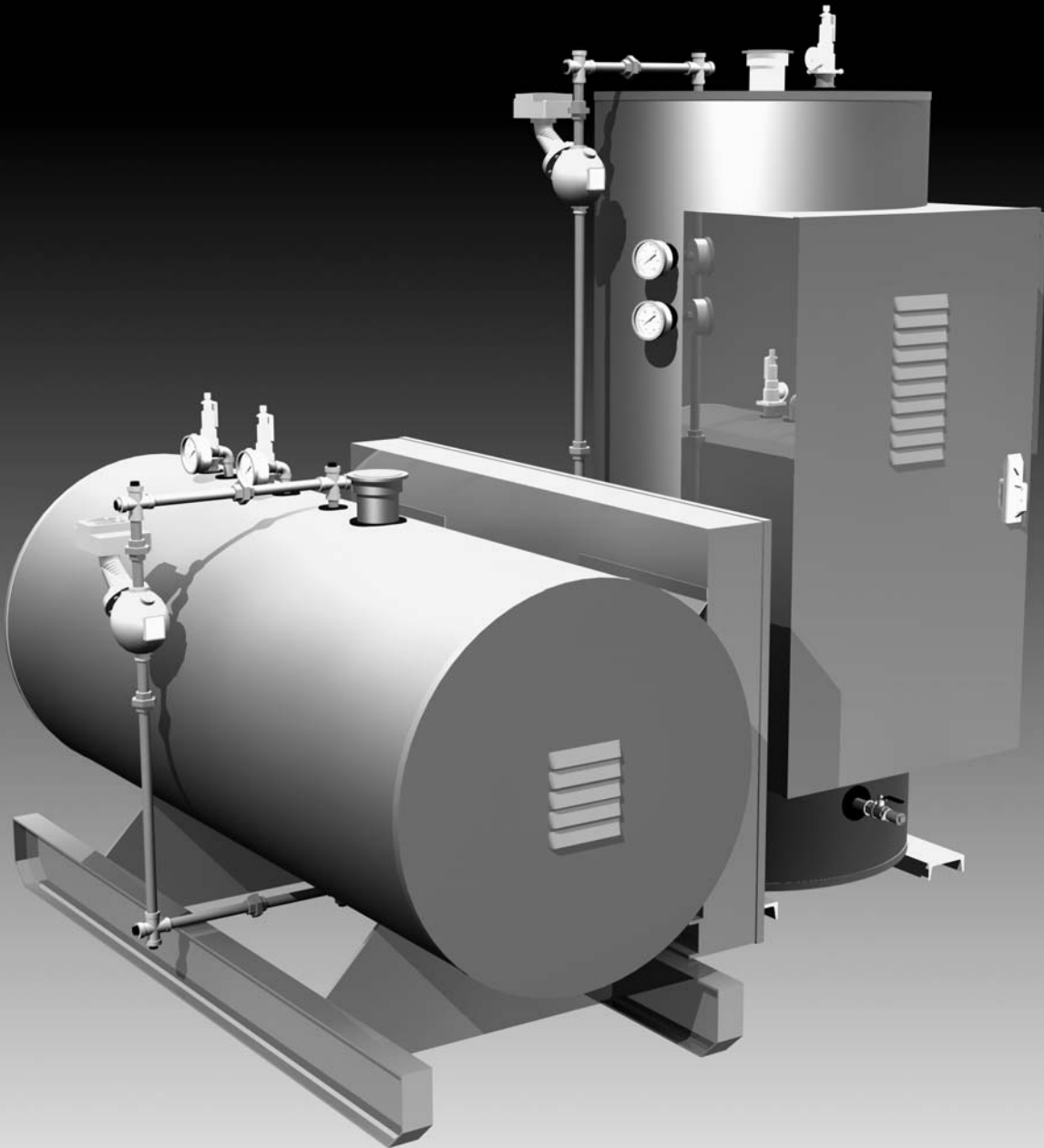


# Electric Boilers



Hot Water Heating  
*Vertical or Horizontal*



**CEMLINE CORPORATION**

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[www.cemline.com](http://www.cemline.com)

# Cemline® Electric Boilers

## Standard Equipment

*Cemline Electric Boilers are designed for hydronic heating systems and process heating. Cemline Electric Boilers are furnished as a complete factory package for one source responsibility. Installation requires only pipe lines and power leads. We offer many optional extras for applications where such features are desired.*

### Standard EB Package

### Features

<b>Storage tank—ASME Code Constructed National Board Registered—H or S Stamp</b> . . . . .	ASME Code stamping and registration offer the assurance of quality controlled construction.
<b>3" fiberglass insulation</b> . . . . .	Prevents heat loss to cut operation costs—meets or exceeds latest ASHRAE standards.
<b>20 Gauge steel jacket with hammertone enamel-painted exterior</b> . . . . .	Protects insulation & provides neat finished appearance.
<b>ASME Pressure Relief Valves</b> . . . . .	Safety feature against excess pressure.
<b>Thermometer &amp; Pressure Gauge</b> . . . . .	Easy to read dials to monitor operating temperature and pressure.
<b>Incoloy sheathed immersion</b> . . . . .	Long life elements of incoloy. Provides ease in field maintenance. Each rod individually removable and replaceable.
<b>Standard operating controls</b> . . . . .	All components necessary for safe-complete operation—all thermostats, high limit resets, contactors, transformer, fusing pilot lights, and low water cut off wired to a NEMA terminal box.
<b>Solid State Step Controller</b> . . . . .	Adjustable proportioning type featuring easily replaceable modular construction.
<b>UL Listing</b> . . . . .	Boilers meet testing and inspection requirements of Underwriters' Laboratories and are so labeled and listed.
<b>Warranty</b> . . . . .	One year against defects in materials or workmanship,

### Optional Extras Available:

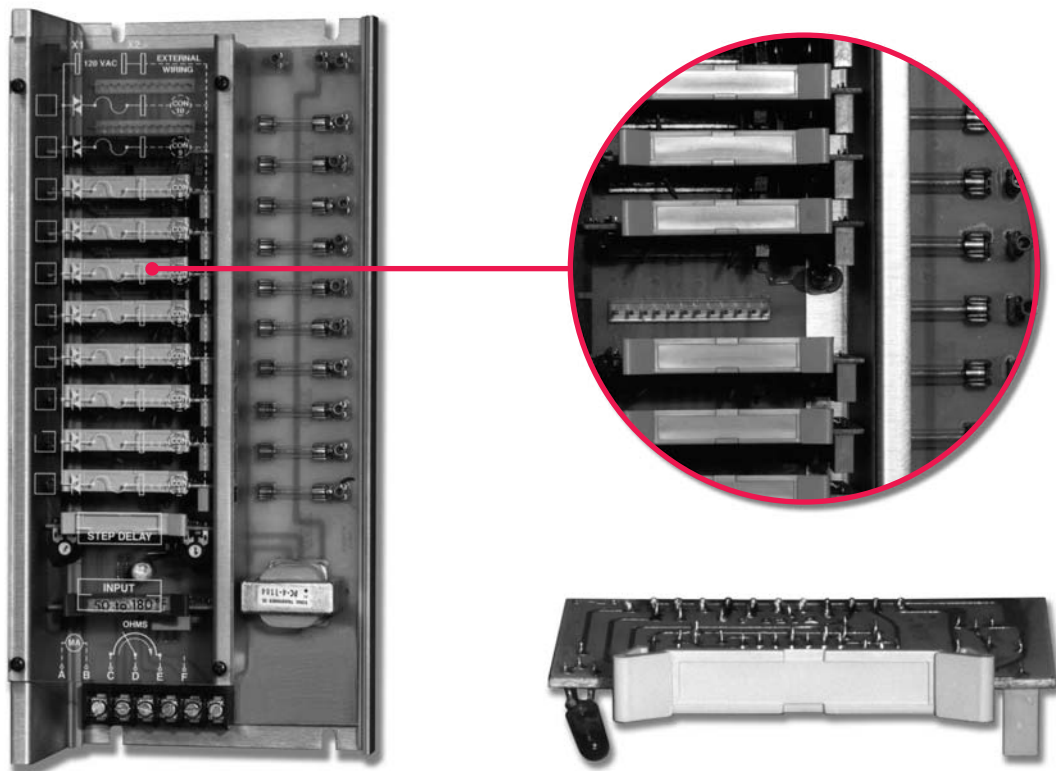
- Circuit breaker with or without shunt trip
- Fused or non-fused disconnect
- Voltmeter
- Ammeter
- Time clock
- Element watt density to suit customer request
- Alarm bell
- Peak load control
- Flow switch
- Outdoor sensor
- Load programmer—or—contacts for customer supplied load programmer
- Manual reset low water level cut off
- High pressure cut off
- Ground fault detection
- NEMA IV panel enclosure
- 4" thick fiberglass insulation
- Indoor/outdoor reset
- Timers
- Feed water pump
- Safety door interlock

# Solid State Step Controller

*Cemline Electric Boilers features a solid state modular design step controller.*

Cemline Electric Boilers feature state of the art solid state step controllers. These step controllers have the following features:

- Quick change plug modules. Unlike most step controllers, each step function has its own replaceable module. This means that troubleshooting can be done in seconds.
- Circular mode to assure equal wear on each heater and contactor.
- Logic status light allows the operator to tell at a glance the system status.
- Fused output stages.
- Adjustable time delay between steps.
- Cycling adjustment allows for time proportioning of power when less than full load is required.



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# Cemline® Electric Boilers

## Standard Equipment

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*Cemline Electric Boilers are furnished with all accessories factory sized and mounted to insure the finest quality and most efficient package.*

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### Tank

Cemline Boilers are constructed and stamped in strict accordance with the latest A.S.M.E. code using pressure vessel quality plate welded by certified welders. Tanks used in the boilers are built in accordance with Section IV or Section I of the A.S.M.E. Code and form H or S certificates are provided. All tanks are registered with the National Board of Boiler Pressure Vessel Inspectors and so certified. Vessels are normally built for 150 psi maximum water working pressure, or 15 psi steam.

### Jacket

Cemline Boilers are neatly and attractively covered with a 20 gauge steel jacket over the fiberglass insulation. The jacket protects the insulation, and is professionally painted with superior quality enamel to allow the added advantage of an easy to maintain surface.

### Insulation

Cemline Boilers are furnished with 3" thick fiberglass insulation. This high quality insulation has proven to be an extremely reliable means of minimizing heat loss and complies with current ASHRAE Standards.

### Base—Support

Vertical heaters are supplied with leg supports with leveling bolts and couplings to receive pipe legs. This provides the option of mounting the unit directly on a floor or raising it with pipe legs to any desired height. Cemline Horizontal Boilers are mounted on structural I-Beam support skids which are engineered to provide correct support for the heater as a permanent base.

### Electric Heating Elements

Cemline Boiler heating elements consist of one or more incoloy sheathed removable immersion rods. These rods are grouped together as three phase deltas to achieve required total kilowatt. Each rod contains resistance wire surrounded by an ample thickness of compressed magnesium oxide. Individual rods are removable and replaceable with ordinary hand tools for in the field replacement to insure worry free maintenance of the heater.

### Control Circuit System

Cemline Electric Boiler control circuits are equipped with a line voltage to 120 volt isolation transformer to provide 120 volt control. This transformer is fused on the primary side and fused and grounded on the secondary side in accordance with A.S.M.E. Code, National Electric Code, and Underwriters' Laboratories.

### High Limit Thermostats or Pressure Switch

Cemline electric Boilers are provided with built in safety protection against high temperature conditions. Electric boilers are furnished with both an adjustable automatic reset type high limit and a manual reset high limit thermostat with a manual reset button. These thermostats open the control circuit if the temperature of the boiler exceeds the set point.

### Contactors

Cemline Electric Boilers are equipped with heavy duty magnetic contactors to close and open circuits as required for load control. The contactors are controlled by a solid state step controller.

### Final Assembly & Testing

Cemline Electric Boilers are thoroughly tested prior to shipment. All components and workmanship are guaranteed for a period of one year from date of start-up or eighteen months from the date of shipment.

### Fuses

Cemline Electric Boilers utilize "Class J" type fuses. Each contactor line is protected by an individual fuse which is designed to interrupt power in the event of an overload condition in that circuit.

# Cemline® Electric Boilers

*Cemline Electric Boilers are furnished as a complete factory package and are UL listed.*

## Wiring

Cemline Electric Boilers are factory wired, utilizing heat resistant, color coded copper wire. All components are factory wired to a generously sized terminal strip for solderless connections. Heaters furnished with circuit breaker or disconnect switch are factory wired to load side of breaker switch.

## Low Water Cut-Off

Cemline Electric Boilers are furnished with float type low water cut-off, wired to open the control circuit on a low water condition.

## Electric Control Cabinet

Cemline electric elements and controls are mounted in a NEMA I enclosure with key lock door.

## Pilot Lights

Pilot lights are supplied to enable the operator to see the status at a glance.

## Relief Valves

Cemline Electric Boilers are provided with a A.S.M.E. pressure relief valve. The valve is sized to relieve the total BTU input of the heating elements.

## UL Listing

Cemline Electric Boilers meet testing and inspection requirements of Underwriters' Laboratories and are listed and labeled as required by Underwriters' Laboratories.

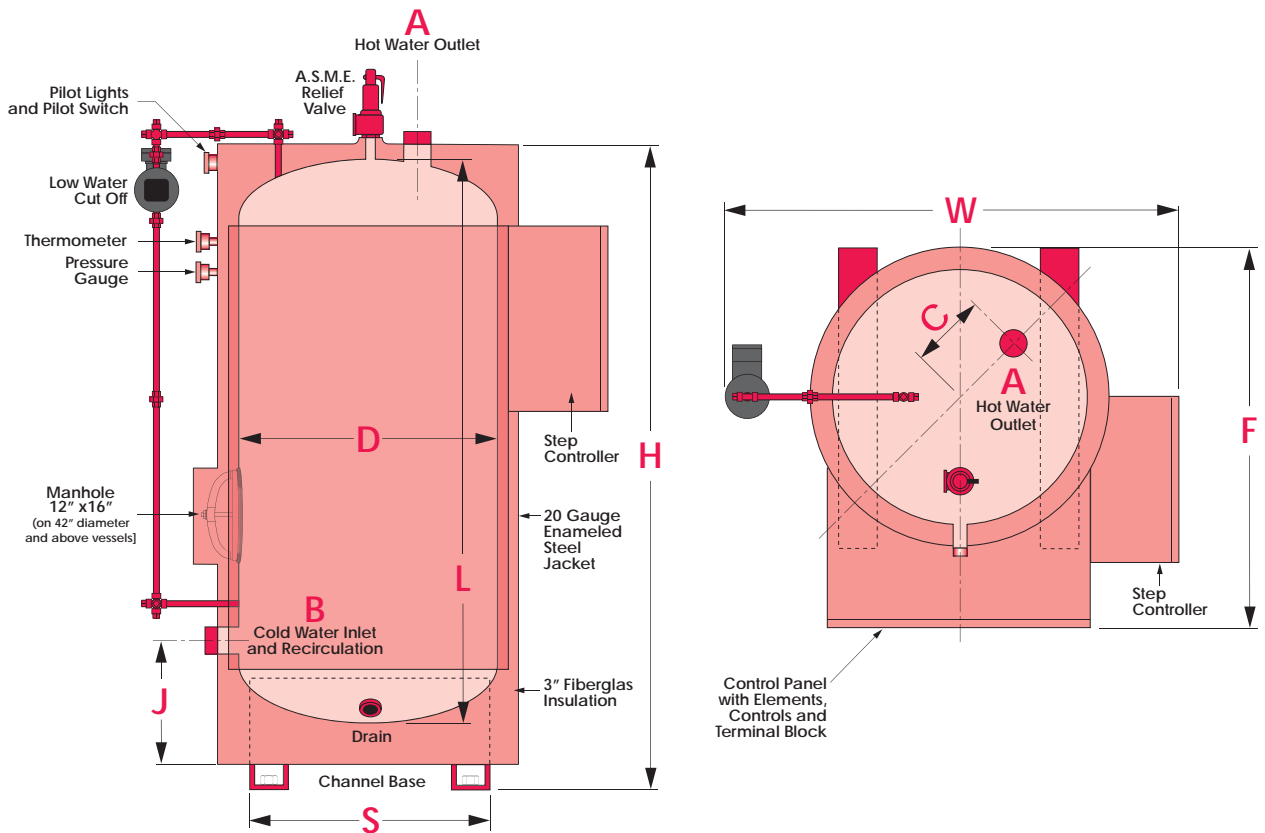
## Thermometer and Pressure Gauge

Cemline Electric Boilers are furnished with a thermometer to monitor vessel temperature and a dial pressure gauge to monitor pressure within the vessel. These gauges are mounted in an easily accessible position so that they may be read from the floor.



# Vertical Boilers

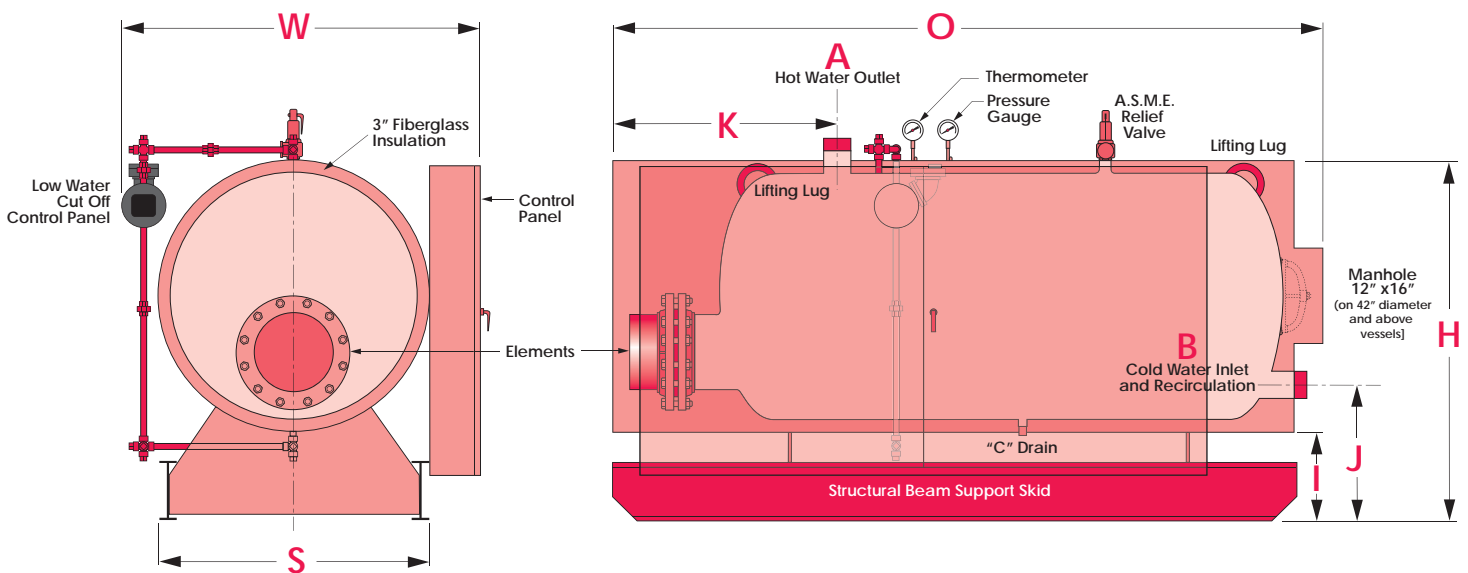
*The dimensions suggested below are well proportioned and suitable for most installations. When building space or other conditions demand, other sizes are readily available. Please consult factory.*



MODEL NUMBER	H	W	D	L	F	J	C	S	A&B
VB30EHB	37 1/2"	28 1/4"	16"	30"	28"	13 1/2"	4"	14"	1 1/2" NPT
VB40EHB	55 1/2"	28 1/4"	16"	48"	28"	13 1/2"	4"	14"	2 1/2" NPT
VB120EHB	70 1/2"	38"	24"	63"	36"	17 1/2"	6"	18"	3" NPT
VB200EHB	78 1/2"	42"	30"	72"	42"	19 1/2"	8"	24"	4" FLG.
VB300FTB	79 1/2"	48"	36"	72"	50"	21 1/2"	8"	30"	5" FLG.
VB450EHB	97 1/2"	56"	42"	90"	54"	25 1/2"	10"	36"	5" FLG.
VB600FTB	69 1/2"	60"	48"	62"	60"	26 1/2"	10"	42"	6" FLG.
VB750FTB	75 1/2"	66"	54"	68"	66"	27 1/2"	10"	48"	6" FLG.
VB900FTB	91 1/2"	72"	60"	84"	72"	29 1/2"	10"	54"	8" FLG.

# Horizontal Boilers

*The dimensions suggested below are well proportioned and suitable for most installations. When building space or other conditions demand, other sizes are readily available. Please consult factory.*



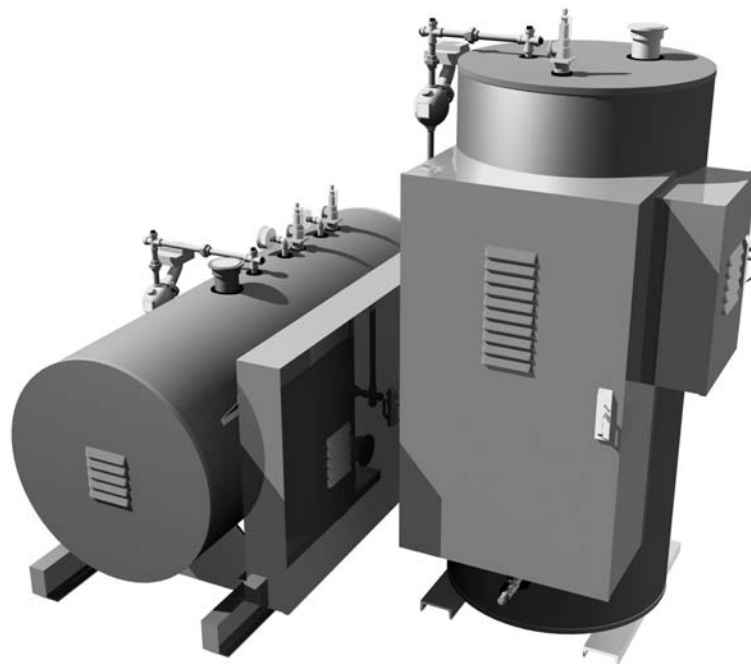
MODEL NUMBER	H	W	O	K	S	I	J	C	A&B
HB30EHB	30"	36"	51"	21"	28"	10"	15"	1"	1 1/2" NPT
HB40EHB	30"	36"	60"	21"	28"	10"	15"	1"	2 1/2" NPT
HB120EHB	38"	43"	93"	44"	28"	10"	15"	1"	3" NPT
HB200EHB	44"	49"	93"	44"	34"	10"	18"	1"	4" FLG.
HB300EHB	50"	55"	93"	44"	40"	10"	19"	1 1/2"	5" FLG.
HB450FTB	56"	61"	98"	44"	46"	10"	19"	1 1/2"	6" FLG.
HB600FTB	62"	67"	98"	44"	52"	10"	19"	1 1/2"	6" FLG.
HB750FTB	68"	73"	98"	44"	58"	10"	19"	1 1/2"	6" FLG.
HB950FTB	74"	79"	98"	44"	64"	10"	24"	1 1/2"	8" FLG.

# Cemline® Electric Boilers

## 208-240 Volt—3 Phase

*The listing below is for boilers which operate on 208-240 volt—3 phase current.*

Boiler No.	KW	Btu/Hr	Steps	Amps 240v 3 Phase	Amps 208v 3 Phase
B30EHB12	12	40,980	1	29	33
B30EHB15	15	51,225	1	36	42
B30EHB18	18	61,470	1	43	50
B30EHB24	24	81,960	2	58	67
B30EHB27	27	92,205	2	65	75
B30EHB30	30	102,450	2	72	83
B30EHB36	36	122,940	2	87	100
B30EHB40.5	40.5	138,307	3	98	112
B30EHB45	45	153,675	3	108	125
B30EHB54	54	184,441	3	130	150
B40EHB60	60	204,900	4	145	167
B40EHB72	72	245,880	4	174	200
B40EHB75	75	256,125	5	181	208
B40EHB81	81	276,615	5	195	225
B40EHB90	90	307,350	5	217	250
B40EHB96	96	327,840	6	231	266
B40EHB108	108	368,820	6	260	300
B120EHB120	120	409,800	7	289	333
B120EHB144	144	491,760	8	347	400
B120EHB150	150	512,250	9	361	416
B120EHB180	180	614,700	10	434	500
B200EHB210	210	717,150	10	506	583
B300EHB240	240	819,600	10	578	666
B450EHB300	300	1,024,500	10	723	833
B450EHB360	360	1,229,400	12	868	1000





# Cemline® Electric Boilers

## 480 Volt—3 Phase

*The listing below is for boilers which operate on 480 volt—3 phase current.*

Boiler No.	KW	Btu/Hr	Steps	Amps 480v 3 Phase
B30EHB12	12	40,980	1	15
B30EHB15	15	51,225	1	18
B30EHB18	18	61,470	1	22
B30EHB24	24	81,960	2	29
B30EHB27	27	92,205	2	32
B30EHB30	30	102,450	2	36
B30EHB36	36	122,940	2	43
B30EHB40.5	40.5	138,307	3	49
B30EHB45	45	153,675	3	54
B30EHB54	54	184,441	3	65
B40EHB60	60	204,900	4	72
B40EHB72	72	245,880	4	86
B40EHB75	75	256,125	5	90
B40EHB81	81	276,615	5	97
B40EHB90	90	307,350	5	108
B40EHB96	96	327,840	6	115
B40EHB108	108	368,820	6	130
B40EHB120	120	409,800	7	144
B120EHB144	144	491,760	8	173
B120EHB150	150	512,250	9	180
B120EHB180	180	614,700	10	216
B120EHB210	210	717,150	10	252
B120EHB240	240	819,600	10	288
B120EHB300	300	1,024,500	10	360
B200EHB360	360	1,229,400	12	432
B300EHB420	420	1,434,300	14	504
B300EHB480	480	1,639,200	16	576
B450FTB540	540	1,844,100	18	648
B450FTB600	600	2,049,000	20	720
B450FTB660	660	2,253,900	20	792
B450FTB720	720	2,458,800	20	864
B600FTB800	800	2,732,000	20	960
B600FTB900	900	3,073,500	20	1080
B600FTB1080	1080	3,688,200	20	1296
B750FTB1200	1200	4,098,000	20	1440
B750FTB1400	1400	4,781,000	20	1680
B750FTB1500	1500	5,122,500	20	1800
B950FTB1600	1600	5,464,000	20	1920
B950FTB1800	1800	6,147,000	20	2160
B950FTB2000	2000	6,830,000	20	2400

Note: Boilers are available for other voltages, single phase and greater KW—consult factory.

# Specifying Cemline® Electric Boilers

## Selecting a Cemline Boiler

1. Select desired voltage.  
208-240 volt — page 8  
480 volt — page 9
2. Select KW, BTU/hour.  
page 8 for 208 volt and 240 volt boilers  
page 9 for 480 volt boilers
3. Select horizontal or vertical configuration.  
page 6 for vertical dimensions  
page 7 for horizontal dimensions
4. Select any optional extras as listed on page 2.

### Specifying a Cemline Boiler Model Number:

\*Example:

Interpretation:

1. "V" for vertical configuration — page 6.  
"H" for horizontal configuration — page 7.
2. Cemline Boiler Number — page 8 and 9.
3. Symbol designating voltage — select from code below:

Voltage	Phase	Code
208	1	BY1
208	3	BY3
240	1	B1
240	3	B3
480	1	C1
480	3	C3
415	3	CY3

4. Symbol for U.L. listing.

\*Example shown above is for a vertical boiler, 75 KW, 480 volt, 3 phase.

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# Sample Specification

## Cemline<sup>®</sup> Electric Boilers

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*Use the specification below to specify a Cemline Electric Boiler.*

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Electric Package Hot Water Boiler shall be as manufactured by Cemline Corporation. Boiler shall be constructed and stamped in accordance with the latest ASME Code, and shall be registered with the National Board of Boiler and Pressure Vessel Inspectors. The boiler shall also meet the requirements of Underwriters' Laboratories and be so labeled.

The boiler shall be furnished with 3" fiberglass insulation and 20 gauge enameled steel jacket. Elements shall be incoloy sheathed resistance type, individually removable and replaceable.

Magnetic contactors shall be factory installed, and shall disconnect all ungrounded conductors to each heater circuit. Control circuit voltage shall be 120 volts. Factory furnished built-in class "J" fuses shall be provided in each ungrounded conductor of each contactor circuit.

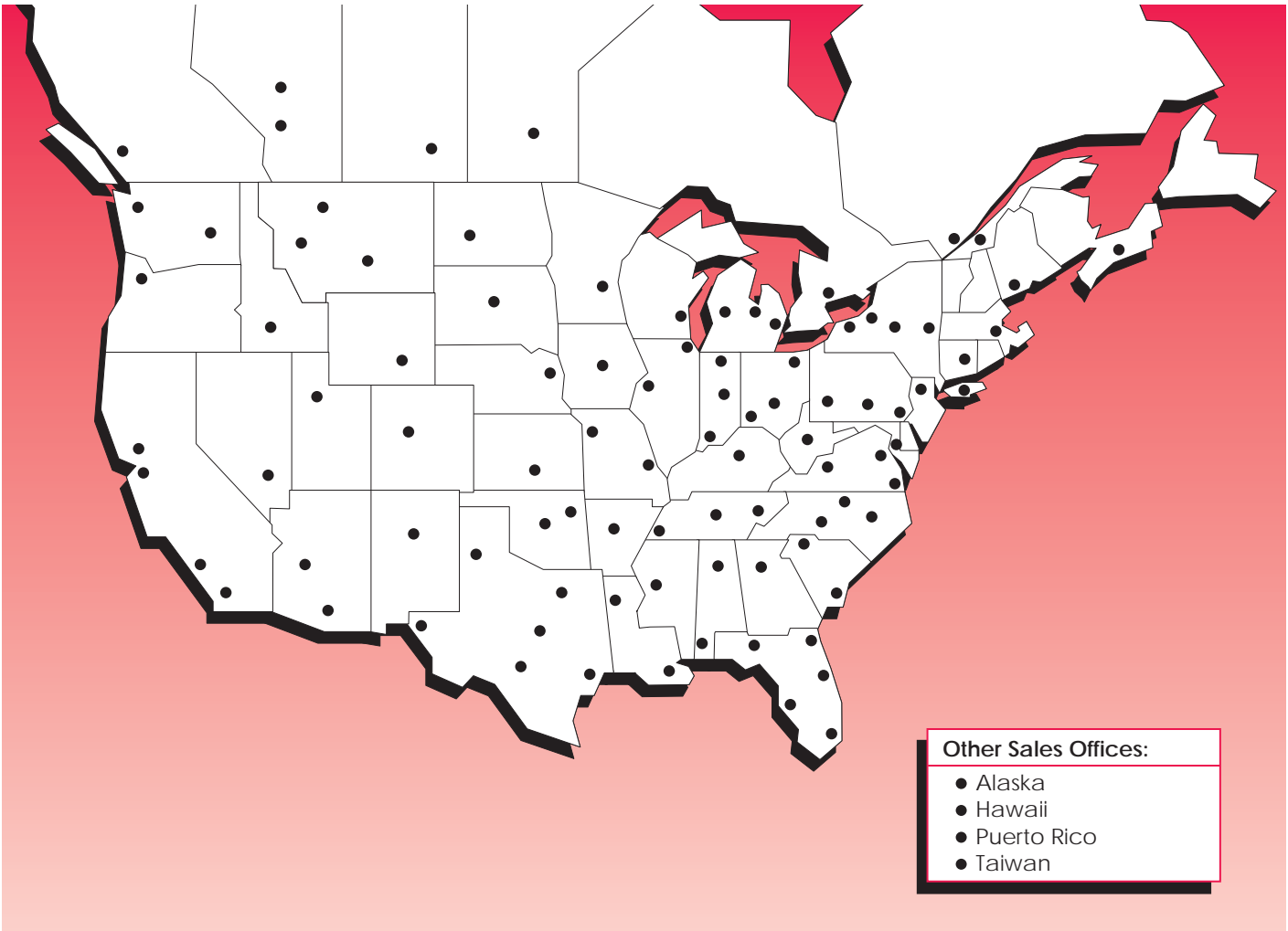
An "on-off" control switch shall be furnished. Red indicating lights shall be provided to indicate the boiler is operating, a high temperature condition or low water condition.

A solid state modulating progressive sequencing step control with the proper number of steps shall control the heater contactors and be capable of turning off the step that has been on longest and turning on the step that has been off the longest. Step controller shall have recycle relay and built-in pilot lights. Each step and function of the solid state step controller must be modular with individual plug in modules. A manual reset high limit thermostat shall be furnished to de-energize all contactors upon actuation. thermometer, pressure gauge and ASME rated safety relief valve shall be provided.

Boiler shall be factory prewired to terminal strip ready for connection to external power supply wiring. All contactors and controls (except those required to be mounted on the vessel) shall be housed in a NEMA I Enclosure with key lock door. Boiler shall have one year warranty against defects in materials and workmanship.

Boiler shall be Cemline Model \_\_\_\_\_. Boiler shall have \_\_\_\_\_ KW input and shall operate on \_\_\_\_\_ volt, \_\_\_\_\_ phase \_\_\_\_\_ cycle current. Boiler shall be designed for \_\_\_\_\_ psi working pressure.

# Sales Offices



- Other Sales Offices:**
- Alaska
  - Hawaii
  - Puerto Rico
  - Taiwan



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- Replacement Tube Bundles
- Steel Tanks
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- Electric Boilers
- STONESTEEL® Packaged Copper Coil Water Heaters
- STONESTEEL® Compact Packaged Copper Coil Water Heaters
- Stainless Compact Packaged Copper Coil Water Heaters
- Unfired Steam Generators
- Condensed Catalog

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